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Residential Access Modification Program (RAMP)

Guidelines and Criteria

Alberta 

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Guidelines and Criteria

The Residential Access Modification Program (RAMP) provides grants to help lower-income Albertans with mobility challenges modify their homes so they can enter and move around more easily.

- Completed applications are reviewed in the order in which they are received, except for priority applications.
- Applications that have not been pre-approved by RAMP may be considered if they are received within 90 days of project completion. In this case, all eligibility criteria must be met to determine if any reimbursements will be made.

Grant Amounts

- The maximum annual grant available from RAMP is \$7,500.
- The maximum available funding, within a 10-year benefit period, is \$15,000.
- If the modifications exceed the maximum amount of \$7,500 available from RAMP, the applicant must provide information on where the balance of the funding is coming from.

Eligibility – Individual

- Applicants must be:
 - Canadian citizen or permanent resident under the *Immigration and Refugee Protection Act (Canada)* living in Alberta and
 - a permanent wheelchair user or
 - 65+ years of age using a walker on a permanent basis or
 - an individual who has been diagnosed with a neuro degenerative diseases in the progressive stage including: amyotrophic lateral sclerosis (ALS), chronic obstructive pulmonary disease (COPD), dementia, multiple sclerosis (MS), muscular dystrophy (MD), Parkinson's, or a non-recovering stroke, spina bifida or, spinal cord injuries. These individuals may be eligible for RAMP funding as it may be anticipated that they will be using a wheelchair within 12 months.
- Please note there are additional requirements for individuals who have sponsorship agreements. The sponsor must also meet the financial eligibility requirement.

Eligibility – Financial

- The current income threshold for a single person is \$36,900 gross annually; and for a couple is \$46,500 gross annually.
- If an applicant has children (dependents) under the age of 21 living at home and attending school on a full-time basis, they may add an additional \$9,600 per dependent to their gross annual income. The applicant will need to include a copy of the dependent child's birth certificate with the RAMP application.

- If an applicant is applying for a dependent child (under the age of 18 and still living at home) who is using a wheelchair, they may add an additional \$7,131 to their gross annual income threshold.

Income Threshold Chart

Family Size	Maximum Income	Family Size	Maximum Income
Single	\$36,900	Adult and Spouse/Partner	\$46,500
Parent/Guardian and 1 child	\$46,500	Adult, Spouse/Partner and 1 child	\$56,100
Parent/Guardian and 2 children	\$56,100	Adult, Spouse/Partner and 2 children	\$65,700
Parent/Guardian and 3 children	\$65,700	Adult, Spouse/Partner and 3 children	\$75,300
Parent/Guardian and 4 children	\$75,300	Adult, Spouse/Partner and 4 children	\$84,900
Parent/Guardian and 5 children	\$84,900	Adult, Spouse/Partner and 5 children	\$94,500

Child in a wheelchair: additional \$7,131 income allowance

- If an applicant is sponsored into Canada, the sponsor must also meet the income eligibility requirements as listed in the chart above.
- RAMP considers all income from all sources and uses Line 150 from Canada Revenue Agency's Notice of Assessment.
- Applicants who cannot provide a Notice of Assessment or whose income has varied significantly may provide a Statutory Declaration showing their income. This could apply to applicants receiving income from sources such as insurance benefits, including employment insurance, new applicants to AISH or income support.
- RAMP may request information on current and/or previous year's income.
- If the applicant is self-employed and operating a business (retail, sales, wholesale, farming, fishing, direct, commission, etc.), they must provide: a copy of an Option C printout from Revenue Canada.

Residency Requirements

- Applicants must live in Alberta and in the home for which the grant is being applied for.
- Approved applicants are expected to reside at their current address for a period of 10 continuous years after receiving a grant for a permanent property modification.
 - For applicants who have received a grant and moved from their current residence, RAMP will not fund the same modification twice. If applicants are aware they are moving, it is suggested they wait until moving to their new permanent residence before applying to RAMP.

- Exceptions may be made for people who are forced to move due to health reasons, marriage dissolution or, financial and/or a landlord forced move (e.g. landlord sells property).

RAMP Property Threshold Values

Municipality	Property Threshold
Calgary	\$510,000
Edmonton	\$420,000
Fort McMurray	\$660,000
Grande Prairie	\$360,000
Red Deer	\$390,000
Lethbridge	\$300,000
Medicine Hat	\$330,000
All Rural Areas	\$276,000

- Property owners who have owned and lived on their property for 24 or more consecutive months are exempt from the RAMP Property Threshold Values.

Clear Property Title

- If the property has a Lis Pendens or Caveat registered against the title, RAMP will require detailed information about this before making a decision.
- Depending on the type of Lis Pendens or Caveat, the application may be denied until the Lis Pendens or Caveat is removed from the title.

Priority Applications

Hospital discharge: applies to applicants who are in hospital awaiting discharge and require a home modification prior to returning to their home.

Palliative care: applies to applicants whose medical diagnosis is terminal and require a home modification to remain in their home.

Appeals

- RAMP does not have an appeal process.
- To receive funding for an eligible modification, applicants must meet program criteria. If an application is rejected, an applicant has the opportunity to provide additional or new information and ask for the application to be re-assessed.
- The RAMP application may be re-assessed if a rejected modification is altered to comply with program guidelines.
- If new information is presented to RAMP, the application may be reopened and re-assessed.

Equipment

- RAMP recommends the purchase of new mechanical equipment (e.g., interior and exterior stair lifts; exterior porch lifts). A new product is one that has never been installed in any personal residence and never been previously used by any person in their residence. A used product is one that was previously installed and removed from any personal residence to be resold to another person.

Applicant Responsibilities

- The applicant is responsible for providing accurate information. If there is a change in circumstances, contractor/vendor or plans, the applicant should contact RAMP immediately to obtain approval to proceed.
- The applicant may be contacted to discuss the application, the proposed plans and contractor of choice.

Quotes

- RAMP does not pay for labour if it is completed by the property owner or family members.
- The applicant must provide two quotes from two different contractors/vendors for a proposed project. RAMP will use the quote that offers the lowest cost, providing the quote meets the needs of the approved applicant and the program.
 - In areas of the province where there is only one contractor/vendor, one detailed quote from the qualified contractor/vendor may be accepted.
- Written quotes must be based on a site visit to the applicant's residence and an inspection of the applicant's residence and property.
- Contractors/vendors must notify the applicant and RAMP of any changes to a project approval (e.g. change in type of lift or site preparations, product availability, project change, additional costs of any type, schedule dates, etc.).

Contractor Disputes

- The Government of Alberta (GoA) is a third-party funder in respect to RAMP grants and does not become involved in any disputes arising from contractual work in process or after a project is completed. The approved applicant must settle any disputes between a contractor/vendor and themselves.

Warranty

- RAMP does not fund the purchase of additional warranties.
- RAMP recommends the purchase of new products in order for the purchaser to be eligible for a standard manufacturer warranty.
- RAMP does not guarantee the workmanship of any contractor/vendor.
- The GoA is not responsible for any defects arising from the project.

Grant Payment

- The payment will be provided after the work has been completed and RAMP receives a dated, signed invoice (by the applicant, guardian, trustee or landlord) indicating the work has been completed according to the proposal submitted and approved – photographs of the completed project must be included.
- All modifications must be completed no later than three calendar months after the date of the approval letter from RAMP. Exceptions may be considered for outdoor work that is weather dependent. In that case, a request for an extension should be requested from RAMP.
- At the applicant's request, the grant payment may be assigned to the vendor/contractor and/or landlord.

Guardian, Agent for a Personal Directive, Enduring Power of Attorney, Trustee

- If the applicant is the age of majority (18 years of age) and has a legal guardian or an agent for a personal directive, the guardian or agent is to sign the RAMP Agreement and provide a copy of their legal documentation authorizing them to act on behalf of the applicant.
- If the guardian or agent for a personal directive agrees with the modification, they will provide a letter of agreement to be included with the application. In addition, the letter must state that the guardian is aware that RAMP provides funding to a maximum of \$15,000 every 10 benefit-years unless the applicant is forced to move.
- If the proposed project exceeds RAMP funding and the estate is contributing monies to complete the proposed project, the applicant's trustee or enduring power of attorney will be required to provide legal documentation confirming their status and confirm in writing that the estate is able to fund the additional costs.
- If the applicant is the age of majority and unable to manage their own personal affairs, either the legal guardian or agent for a personal directive must sign the RAMP Agreement and provide legal documentation confirming their status.
- If the wheelchair user is a minor, the parent/guardian will apply for and sign the RAMP Agreement. The guardian must provide documentation confirming their status.

Eligible Modifications

RAMP may fund the following permanent modifications:

Exterior

- Door (main entry type up to 36" (914 mm)) widening and replacement (left or right opening, kick plate) to a maximum of \$2,000 per door
- Landing pads (upper and lower) may be 60" x 60" (1524 mm x 1524 mm) (for manual wheelchair); 72" x 96" (1828 mm x 2438 mm) (for centre drive

wheelchair); and 96" x 96" (2438 mm x 2438 mm) (for rear wheel drive wheelchair)

- Porch lift with electrical connection (self-installs are not eligible)
- Ramp(s) – wheelchair type only
- Site preparation for a porch lift (pads may be permanent or temporary and include walkway access if necessary)
- Stair lift with electrical connection (self-installs are not eligible)
- Threshold ramp at entry door
- Walkways. If part of access system – 40" (1016 mm) in width is recommended for personal residences – refer to Barrier-Free Guidelines for multi-unit residences
- The exterior walkway must be part of an access system in order to be an eligible modification. The residence must have a flat entrance, an exterior wheelchair ramp, an exterior porch lift or an exterior stair lift

Interior

- Bathroom (includes wheel-in shower, wheelchair accessible vanity, high-rise toilet).
- Bathtub cut-out inserts to a maximum cost of \$850
- Ceiling track lifters (for bath lifts, bedroom lifts, exercise rooms, hallways, living rooms, stairwells)
- Door widening (includes kick plates) for exterior or interior purchases and installations to a maximum cost of \$2,000 (standard main entry doors)
- Entrance hallway to facilitate wheelchair access
- Floor covering changes from carpet to laminate, linoleum or vinyl for manual wheelchair and walker users
- Interior handrails for stairwells and along interior walls
- Plumbing for modification of an existing bathroom
- Pocket door installation
- Stair lift with electrical connection (self-installs are not eligible)
- Threshold ramp between rooms

NOTE: Where applicable, all modifications and equipment must be Canadian Standards Association (CSA)/ Underwriters Laboratories (UL) approved.

Ineligible Home Renovations

Home renovations, maintenance or home repairs of any type are not funded by RAMP. Some examples of home repair that RAMP does **NOT** fund are:

- Additions (bathroom, any room including a bedroom, mother-in-law suites, porches, rental suites, new basement suites (rental or family or personal use))
- Addition of additional entrances for walkouts or basements (includes doors, walkways, supporting walls, retaining walls, pony walls, excavation costs, permits, design and architectural costs)
- Air conditioning and removal
- Appliance repair or replacement
- Asbestos removal
- Basement repair
- Bathroom vanities with cabinets (not wheelchair accessible)
- Bathroom sinks with a cabinet vanity (not wheelchair accessible)
- Bathtubs (regular or walk-ins)
- Beds (any type – purchase or replacement)
- Carpet repair or replacement with new carpet
- Decks (of any size)
- Deck repair or replacement (includes railings)
- Deck roof (maintenance, repair, replacement)
- Door repair (includes storm doors)
- Driveway repair or replacement
- Drywall repair or replacement
- Eaves (repair)
- Eavestroughs (repair or replacement)
- Electrical repair or upgrade
- Fencing
- Floor repair
- Foundation repair
- Furnace repair or replacement
- Furniture (purchase or repair – includes televisions)
- Garage repair (door or roof)
- Garden, patio, French doors, storm doors and sidelights

- Grab bars for bathrooms
- Handrail installation for exterior steps or sidewalk
- Hot water tanks
- Insulation
- In-floor heating
- Kitchen modifications and renovations, repair, and/or maintenance of any type
- Landing roof (new, maintenance, repair, replacement)
- Landscaping (includes grass cutting, snow removal, tree pruning and removal)
- Laminate floor covering repair or replacement
- Lift chairs
- Linoleum repair or replacement
- Mould
- Painting (interior or exterior)
- Parking pad repair or installation
- Pergola repair or installation
- Porch repair or replacement
- Plumbing repair
- Ramp roof (new, repair, replacement)
- Recliners (purchase or replacement – any type)
- Roof repair (new, maintenance or repair on personal residences of any type - apartment, condominium, garage, mobile, modular, stick and additions, deck, landings, porches, ramps and/or walkways)
- Service installation (new: water, gas, sewer, electrical)
- Sewer repair
- Shower units – RAMP does not fund walk-in or stand-up showers
- Sidewalk repair
- Sidewalk replacement (if not part of wheelchair access system and if not wheelchair width)
- Siding repair or replacement
- Skirting (includes mobile or modular homes, decks, landings and exterior wheelchair ramps)
- Stairs (repair or replacement)
- Toilets (standard height)

- Tree removal or trimming
- Weeping tile repair or replacement
- Window replacement
- Window casements (painting, repair or replacement)

RAMP will not fund or reimburse contractors or applicants for the following project costs:

- Construction drawings and site specifications
- Dust control
- Site management or supervision costs

Barrier-Free Guidelines

The Alberta Building Code (ABC) takes precedence over all other codes and standards. The contractor must ensure that the requirements of Barrier-Free Design within the ABC are met.

The following Barrier-Free Guidelines will be used to determine RAMP eligibility.

Bathrooms

The doorway that allows entry to a washroom must have a clear opening of at least 33.5" (850 mm) and a corridor width of at least 48" (1200 mm) when turning a 90 degree corner. If the doorway entrance is 36" (915 mm) clear, then the corridor width may be 36" (920 mm).

The toilet seat height should be 17" \pm 1" (430 mm + 30 mm) from the floor, with a sink top surface height of 30" \pm 2" (760 mm \pm 50 mm).

The bathroom counter must have a work surface that is not less than 34" (865 mm) above the floor with a knee space that is:

- 30" (760 mm) wide;
- 27" (685 mm) high; and
- 19" (485 mm) deep.

The bathroom sink must not include a vanity with doors or shelving, but should be either a pedestal or a wall mounted sink. The sink may have a countertop but it must be wheelchair accessible with knee space beneath and exposed plumbing must be insulated to prevent burns.

Bathroom Shower Stalls

The inside measurement of a wheelchair accessible shower stall should not be less than 35" deep x 60" wide (900 mm x 1500 mm).

As each shower unit has a different weight bearing capacity (on the available models of seats, floor bases or grab bars), the applicant's weight is to be considered to ensure that the shower unit is able to accommodate the weight of the user(s).

If the applicant is a wheelchair user, the flooring should have a slip-resistant finish and a beveled threshold entrance of either a 1/2" (13 mm) or a compression entrance lip not more than 1" or (26 mm) in height to accommodate a wheelchair commode.

If the applicant is using a walker (and does not use a wheelchair on any basis), and/or has progressive MS, progressive MD, and/or progressive COPD, and does not experience difficulty in lifting their legs, the shower entrance lip may be up to a maximum height of 4" (52 mm).

The clear floor space at the entrance to the shower must have a minimum space of 35" (900 mm) and be the same width, 60" (1500mm), as the shower. Fixtures are permitted to intrude into the space but must not restrict access to the shower stall.

Shower/wet room curtains, swing away shower rods, glass shower doors, seats, grab bars and/or hand held shower sprays may be included as part of the costs for the shower project.

Ceiling Track Lifters

RAMP may provide funding for the purchase and installation of ceiling track lifters and turntables. If applicable, provide the serial number of the ceiling track.

Doorways

Every doorway along a barrier-free path or within a suite of residential occupancy must have an opening of at least 33 1/2" (850 mm) to allow the applicant's wheelchair to pass through the opening. Every door must have minimum headroom clearance of 82" (2100 mm).

Levered handles are preferred by people with limited ability/strength. Door hardware should be installed between 35" and 42" (900 mm and 1065 mm) above the finished floor. RAMP does not fund the replacement of door hardware on existing doors.

It is preferred that raised thresholds in doorways be avoided. If necessary, the door threshold shall not exceed 1/2" (13 mm) in height above the finished floor surface and must be beveled to provide a smooth transition from area to area.

RAMP may provide funding to replace existing exterior main entry doors and interior doors less than 33 1/2" (850 mm) and up to 36" (914 mm) in width with a standard opening to a maximum of \$2,000. The entry may be either right- or left-hand opening.

Exterior Porch Lifts

The RAMP program recommends the purchase of new mechanical equipment (e.g., interior and exterior stair lifts; exterior porch lifts).

Exterior porch lifts must have an upper deck landing that is level and at least 60" x 60" (1500 mm x 1500 mm) with a rail of 36" (920 mm) in height.

All exterior porch lifts must include a winter package if they are to be installed outside the residence. A winter package is unnecessary if the lift is to be installed inside a garage.

If the upper deck has stairs used by foot pedestrians as well as the wheelchair user, a locking gate is necessary to prevent the wheelchair user from accidentally falling off the steps. The deck pad must be a permanent material.

Self-installed porch lifts are not funded by RAMP. All platform and porch lifts must be installed by a certified vendor and/or representative.

Stair Lifts (Interior/Exterior)

The RAMP program recommends the purchase of new mechanical equipment (e.g., interior and exterior stair lifts; exterior porch lifts).

Self-installations are not funded by RAMP. All stair lifts (interior/exterior) must be installed by a certified vendor.

Exterior Walkways

Exterior walks for personal residences (e.g. single family, duplexes, and four-plexes) should be at least 43" (1100 mm) wide, forming a continuous plane uninterrupted by steps or abrupt changes in level that is part of a wheelchair access system to the residence.

An access system is defined as a personal residence with either a flat or flush entrance with the exterior landing and walkway, a personal residence with an exterior wheelchair ramp or a personal residence with an exterior porch lift or exterior stair lift. If the residence has one of the listed types of entrances and support systems, then RAMP may consider funding a wider walkway to accommodate a wheelchair or walker.

Carpet Removal

RAMP may fund the replacement of carpeting, except on stairs or in closets, with hard flooring that is certified/approved by the manufacturer for wheelchair/walker use. The maximum allowance for carpet removal and replacement is \$60 per square yard or \$6.67 per square foot.

Multi-Unit Buildings (apartments, condominiums)

Exterior walks that form part of a barrier-free travel path should be not less than 43" (1100 mm) wide, and form a continuous plane not interrupted by steps or abrupt changes in level. The cross-slope ratio must not be greater than 1:50 (1 inch of height to 50 inches of length).

Walkways with a 60" (1500 mm) width are preferred to allow wheelchairs to pass one another.

A walkway that has a vertical drop exceeding 3" (75 mm) must have a minimum curb height on each side of the walkway of at least 3" (75 mm).

Pre-cast units (brick pavers, concrete slabs, tiles) are not recommended. However, if they are used, all joints should be as flush as possible and the upper limit of the joints must not exceed 0.25" (6 mm).

Ramps

Pressure treated wood is not required for the construction of a landing, rails and/or a ramp if the ramp is being installed in an enclosed building on a cement floor.

Exterior ramps and landings may be funded to a maximum of \$45 per square foot, ramp railings to a maximum of \$24 per lineal foot, and stair railings to a maximum of \$20 per riser per side.

Threshold ramps may be required on existing decks if the exterior entrance is not flush with the deck.

Latching gates to lift entrances on exterior landings and decks are necessary to prevent falls. If the stair entrance is adjacent to the exterior lift, a swing gate or an additional gate may be necessary to prevent falls. The use of chains across the lift or stair entrance is not sufficient.

RAMP will not fund yard cleanup in order to install an exterior wheelchair ramp, exterior porch lift or exterior walkway.

The ramp must have:

A slope of not more than 1:12 (1 inch of height to 12 inches of length), although a slope of 1:16 (1 inch of height to 16 inches of length) to 1:20 (1 inch of height to 20 inches of length) is preferred, complete with handrails.

A latching gate is required for upper landings at the entrance to the porch lift and a latching gate is required at the step entrance (swing gates are acceptable) to prevent falls.

Handrails on both sides that must be continuously graspable along the entire length and have:

- A circular cross-section with an outside diameter of not less than 1.2" (30 mm) and not more than 1.7" (43 mm)
- A non-circular cross-section with a graspable portion that has a perimeter not less than 3.9" (100 mm) and not more than 4.9" (125 mm) and whose largest cross-sectional diameter is not more than 1.8" (45 mm)
- A width of not less than 36" (914 mm) between the handrails.

The overall ramp length does not include the upper and lower landings. The overall length refers to the length of the ramp and possible interior rest level (flat) landings (platforms).

For manual wheelchair and walker users, the upper landing or level areas at the exterior door entrance to the home must not be less than 60" x 60" (1500 mm x 1500 mm). If a lower (at the bottom of the ramp) landing is required, it must be 60" x 60".

A resting point at intervals of no more than 354" (9000 mm). However, if the applicant has weak upper body strength, rest platforms are recommended every 240" (6096 mm) and the slope required may be increased to 1:16 or 1:20.

A resting point or landing platform with a minimum surface area of 48" (1200 mm) in length and at least the width of the ramp.

A level area of at least 48" x 48" (1200 mm x 1200 mm) if the ramp makes a 90 degree turn.

A level area of at least 60" x 60" (1500 mm x 1500 mm) if a ramp makes a 180 degree turn.

A permanent, firm and slip-resistant surface and a high (rail) guard set at 36" (915 mm) \pm 2" (50 mm).

If the wheelchair is a rear drive powered chair, the level areas at the top and bottom of the ramp may need to be 96" x 96" (2438 mm x 2438 mm); or if the power wheelchair is a centre drive, a 72" x 96" (1.8 m x 2.4 m) upper landing may be required.

Ramps, landings and horizontal rails under 24" in height may be constructed of pressure treated wood products, aluminum or steel as per the type supplied by local vendors in a metal component package; used as per RAMP guidelines.

Edge protection must be incorporated into all ramp designs whose sides are not adjacent to a wall.

Modular aluminum/steel ramps and landings may also be used for exterior wheelchair ramp projects if the total height does not exceed 24".

The use of pressure treated wood, synthetic, cedar, steel and/or aluminum material is mandatory under program guidelines. The use of pressure treated wood is recommended for all exterior wood ramps and 24" x 72" (609 mm x 1828 mm) planks are recommended instead of pressure treated wood sheets for ramp and landing surfaces to allow for better drainage of surface moisture.

An exterior ramp requires a level rest platform every 29' (8839 mm) of ramp length. However, if the applicant or caregiver has weak upper body strength, it is recommended that a level rest platform is inserted every 20' (6096 mm) of ramp length. In addition, the required slope may be 1:16 or 1:20.

The use of non-treated wood products for all exterior modifications – wheelchair ramps, landings, stairs, porch lift pads or walkways – is not allowed under the RAMP guidelines.

All ramps, landings (and rails) exceeding 24" in height must be constructed of pressure treated wood products (planks recommended over plywood sheets) with vertical picket railings (does not include skirting for decks, landings or ramps).

Plastic material, post caps with lighting, aluminum or wrought iron rails on wood ramps and landings, as well as imitation wood products, cable, custom glass, iron, Plexiglas, synthetic coverings, vinyl, stainless steel, tile, et cetera, will not be funded by RAMP.

Minimum Ratio Chart for Ramps

RAMPS			
1:12 Minimum Ratio			
Imperial		Metric	
Rise	Length	Rise	Length
1 in.	12 in.	25 mm	300 mm
2 in.	24 in.	50 mm	600 mm
3 in.	36 in.	75 mm	900 mm
4 in.	48 in.	100 mm	1200 mm
6 in.	60 in.	150 mm	1800 mm
8 in.	96 in.	200 mm	2400 mm
10 in.	120 in.	250 mm	3000 mm
12 in.	144 in.	300 mm	3600 mm

RAMPS			
1:16 Suggested Ratio			
Imperial		Metric	
Rise	Length	Rise	Length
1 in.	16 in.	25 mm	400 mm
2 in.	32 in.	50 mm	800 mm
3 in.	48 in.	75 mm	1200 mm
4 in.	64 in.	100 mm	1600 mm
6 in.	96 in.	150 mm	2400 mm
8 in.	128 in.	200 mm	3200 mm
10 in.	160 in.	250 mm	4000 mm
12 in.	192 in.	300 mm	4800 mm

RAMPS			
1:20 Suggested Ratio			
Imperial		Metric	
Rise	Length	Rise	Length
1 in.	20 in.	25 mm	500 mm
2 in.	40 in.	50 mm	1000 mm
3 in.	60 in.	75 mm	1500 mm
4 in.	80 in.	100 mm	2000 mm
6 in.	120 in.	150 mm	3000 mm
8 in.	160 in.	200 mm	4000 mm
10 in.	200 in.	250 mm	5000 mm
12 in.	240 in.	300 mm	6000 mm